

T. H. DRURY.

Machines for Punching Sheets of Metal.

No. 155,014.

Patented Sept. 15, 1874.

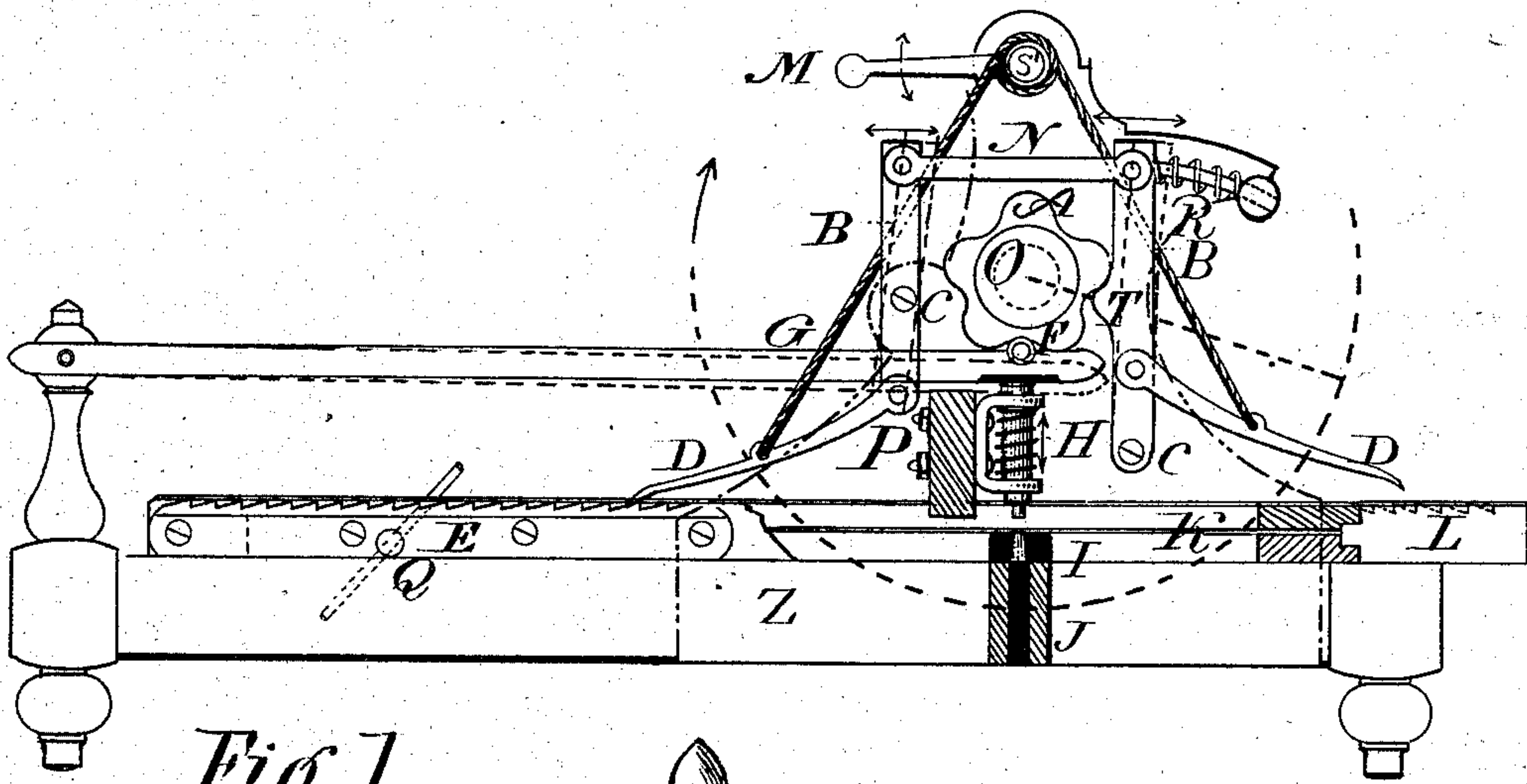


Fig. 1.

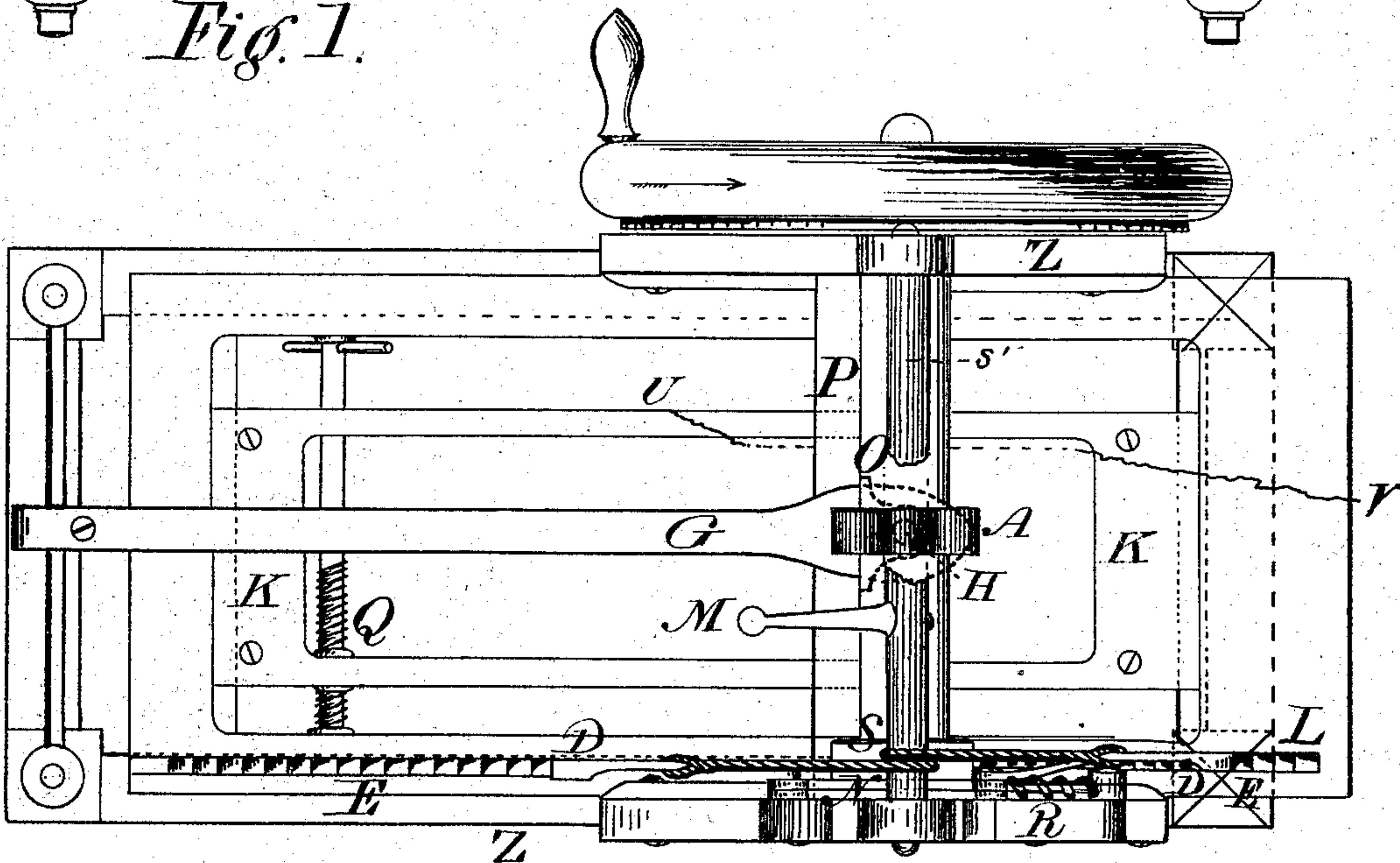


Fig. 2.

Witnesses.

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THOMAS H. DRURY, OF WHEATLAND, OREGON.

IMPROVEMENT IN MACHINES FOR PUNCHING SHEETS OF METAL.

Specification forming part of Letters Patent No. **155,014**, dated September 15, 1874; application filed May 15, 1874.

To all whom it may concern:

Be it known that I, THOMAS H. DRURY, of Wheatland, Yamhill county, Oregon, have invented an Improvement in Perforating-Machines, of which the following is a specification:

This machine is used for punching or perforating metal plates used in mill machinery, and wheat-separators, &c., or any like use wherein metal plates are to be pierced with numbers of small holes.

Figure 1 is a side elevation, partly in section; Fig. 2, a plan, showing the arrangement as seen from above.

The various letters refer to the same parts in each.

The frame-work **Z** supports the punching apparatus and the movable frames **K L**. The frame **L** is fed along in either direction by one of the pawls **D**. Inside of **L**, or on it, a second frame, **K**, is placed, divided into an upper and lower part in such a way that a piece of metal may be clamped between them by screws in the edges of the frame. While **L** moves backward or forward by means of the pawls **D**, **K** is moved across one space at the end of each line of holes by means of the screw **Q**, as far as may be desired. A shaft, **O**, has on it two cams, **A** and **S**. **A** works against a bar, **G**, pivoted at one end, the other end having a friction-roller, **F**, or not, as may be desired, and by reason of the contour of said cam **A** a vibrating vertical motion is given to the punch **H**. The punch is provided with a collar near its upper end, against which a spiral spring works, lifting the punch and the bar **G** after each thrust of the cam **A**. The cam **S** is similar in shape to **A**, and works against a projection, **T**, on one of the bars **B**. These bars **B** are movable on centers **C**, and are connected by a link, **N**. On each of the bars **B** a pawl, **D**, is hung, which engages

with racks **E** on the frame **L**, and these pawls are operated in this manner: A cord end is fastened to each pawl **D**, and at the middle two or three turns are made about a shaft, **S'**, moved by a lever, **M**, and the pawls are thus lowered or raised, as may be desired, one pawl moving the frame in the direction opposite to that in which it is moved by the other—that is, when the end of one line of holes is reached the other pawl is let down and the screw **Q** adjusted, and a new line of holes commenced. A spring, **R**, connecting one of the bars **B** to the frame **Z**, serves to maintain said bar in contact with the cam-wheel **S**. The punch-bearings are secured to a beam, **P**, extending from side to side of the frame-work **Z**, and the punch-die **I** is also supported by a similar beam, **J**, underneath the metal to be pierced.

The section seen in Fig. 1, at the right end of the frames **K** and **L**, is taken through the line **U V**, Fig. 2, and is intended to show the opening in the frame **K** principally, and its bearing on the frame **L** at the ends. A rotary motion is given to the shaft by the crank on the fly-wheel at its end, and is continued during the time occupied in punching one line of holes.

I claim—

1. In combination with the frame **L** and reversely-disposed racks **E**, the pawls **D**, levers **B**, link **N**, cord **T**, shaft **S'**, and cam **S**, arranged and operating substantially as described, for the purpose specified.

2. In combination with the frames **K L**, screw **Q**, racks **E**, and die **I**, the pawls **D**, levers **B**, link **N**, cord or chain **T**, shaft **S'**, cam **S**, shaft **O**, cam **A**, bar **G**, and punch **H**, operating in the manner and for the purpose set forth.

THOMAS H. DRURY.

Witnesses:

T. J. SLOAN,
CHAS. B. TALBOT.